

**Request to Archive
With The National Centers for Environmental Information
For CDR Mean Layer Temperature - UAH, Version 6
Provided by UAH**

2017-03-10

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

John Christy

UAL-H/ATMOS/ESSL > Earth System Science Laboratory, Department of Atmospheric Sciences, University of Alabama, Huntsville

Director, Earth System Science Center

256-961-7763

christy@nsstc.uah.edu

2. Name the organization or group responsible for creating the dataset.

UAL-H/ATMOS > Department of Atmospheric Sciences, University of Alabama, Huntsville

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

This request is for the latest version (v6.0) of the Mean Layer Temperature CDR from UAH to be updated monthly. The previous v5.6 was approved by NCEI for archiving but was never archived because it has been superseded by this v6.0. The earlier v5.4 is archived at NCEI-Asheville as a static CDR.

Version 6.0 utilizes the linear calibration equation with hot-target correction for the Microwave Sounding Unit series (MSU, TIROS-N through NOAA-14) rather than the non-linear calibration equation supplied by NESDIS. Gridded values of absolute temperature are calculated from a polynomial fit in the vertical coordinate of all view angle temperatures binned into each grid over a month. The selected temperature is calculated from a prescribed view-angle where it intersects the polynomial fit of the temperature vs. view-angle relationship or each grid.

The diurnal adjustment is completely empirical, calculated by comparing a diurnally-drifting spacecraft against one that is not drifting during their overlap comparison period (for a.m. spacecraft, NOAA-15 vs. (non-drifting) AQUA, and for p.m., NOAA-18 vs. (non-drifting) NOAA-19 during 4 years). The calculated diurnal relationship of temperature change vs. time of day is then applied to all drifting satellites.

This data submission includes Monthly global gridded anomalies (2.5x2.5 degree grid) since Dec 1978 of four bulk-layer products, Lower Troposphere (TLT), Mid-Troposphere (TMT), Tropopause (TTP) and Lower Stratosphere (TLS). In addition to global grids, a file of monthly anomalies of sections of the globe (e.g. Tropics) with three results for each latitudinal section: Total, Land and Ocean. Additionally, sections for (a) the 48 Conterminous states of the United States, (b) US plus Alaska and (c) Australia will be provided. A data set of the monthly mean annual cycle (grids) of each product, TLT, TMT, TTP and TLS will be archived.

A new layer temperature is added to the current three layers, the bulk layer centered on the Tropopause. The Lower Troposphere is calculated from a linear combination of TMT, TTP and TLS rather than from a linear combination of view-angles from the single channel (MSU2 or AMSU5) as was done in versions 5.6 and earlier.

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 1978-01-01

Ongoing as continuous updates to the data record

5. Edition or version number(s) of the dataset:

Version 6.0

6. Approximate date when the dataset was or will be released to the public:

2015-05

7. Who are the expected users of the archived data? How will the archived data be used?

NCEIClimate Monitoring Branch, CDR Program, and other atmospheric science data users.

8. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

In addition to our published evaluations, other publications dealing with upper air data have included UAH products in their evaluation metrics. NCEI did not participate in UAH's design process, and we are unaware if NCEI participated in evaluation procedures published in other documents.

9. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

The new version 6.0 incorporates several logistical and scientific changes. The code has been completely rewritten by a programming expert to be modular and portable. The code is designed to run on the first day of the month to produce the previous months values. In terms of determining and applying adjustments to the raw data we now (1) empirically calculate the diurnal drift adjustment by comparing a drifting satellite vs. a non-drifting satellites then applying those adjustments to all drifting satellites, (2) calculate the gridpoint temperature from a polynomial fit to ALL temperatures from all view-angles by setting a prescribed view-angle and its intersection with the polynomial, (3) include later orbiters, (4) apply (for MSUs) the linear calibration equation supplemented with a hot-target correction rather than using the NESDIS non-linear calibration equation, (5) include a fourth product, the tropopause layer temperature (TTP)

10. List the input datasets and ancillary information used to produce the data.

NOAA MSU and AMSU Level 1b datasets, NASA AQUA Level 1b dataset

11. List web pages and other links that provide information on the data.

<http://www.nsstc.uah.edu/data/msu/>

12. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. A comprehensive documentation tar file, including, all new code, a new C-ATBD and Data Flow Diagram, will be submitted to the archive by CDRP.

13. Indicate the data file format(s).

1. netCDF-4

14. Are the data files compressed?

No

15. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

Lower Stratosphere Files:

uah_mlt_tls_v06r00_monacg_s19810101_e20111231_c{YYYYmmdd}.nc
uah_mlt_tls_v06r00_monamg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc
uah_mlt_tls_v06r00_monreg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc

Lower Troposphere Files:

uah_mlt_tlt_v06r00_monacg_s19810101_e20111231_c{YYYYmmdd}.nc
uah_mlt_tlt_v06r00_monamg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc
uah_mlt_tlt_v06r00_monreg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc

Middle Troposphere Files:

uah_mlt_tmt_v06r00_monacg_s19810101_e20111231_c{YYYYmmdd}.nc
uah_mlt_tmt_v06r00_monamg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc
uah_mlt_tmt_v06r00_monreg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc

Tropopause Files:

uah_mlt_ttp_v06r00_monacg_s19810101_e20111231_c{YYYYmmdd}.nc
uah_mlt_ttp_v06r00_monamg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc
uah_mlt_ttp_v06r00_monreg_s19781201_e{YYYmmdd}_c{YYYYmmdd}.nc

16. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

Native ASCII formatted files can be downloaded from the FTP server: <http://www.nsstc.uah.edu/data/msu/>
NetCDF formats are still in work.

17. What is the total data volume to be submitted?

Continuous Data: data volume rate for a continuous data production.

Total Data Volume Rate: 20MB per Month

Data File Frequency: 8 per Month

Data Production Start:

18. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

New period of record (POR) files should replace previously submitted POR files.

19. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location: Huntsville, AL

System Name: vortex

System Owner: UAH

Additional Information: FTP server

20. What are the possible methods for submitting the data to NCEI? Select all that apply.

1. SFTP PUSH

21. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.

1. Direct download links

2. Advanced web services (e.g., THREDDS Catalog Service)

22. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?

No known constraints apply to the data.

23. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.

Continued monitoring of atmospheric temperature is critical to advancing our understanding the sensitivity of Earth's climate to changing atmospheric composition. In addition, understanding and forecasting climate variability will be assisted by global coverage of these data.

24. Are the data archived at another facility or are there plans to do so? Please explain.

No

25. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?

This project is a subcontract for CDRP

NCEI contacts: Candace Hutchins

26. Do you have a data management plan for your data?

No

27. Have funds been allocated to archive the data at NCEI?

CDRP funds

28. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.

N/A

29. Is there a desired deadline for NCEI to archive and provide access to the data?

Archive by: 2017-05-31

Accessible by:

30. Add any other pertinent information for this request.

- Period of record files

- Lei Shi is the NCEI Science SME